



BA/MA/SA/Group/Lab:

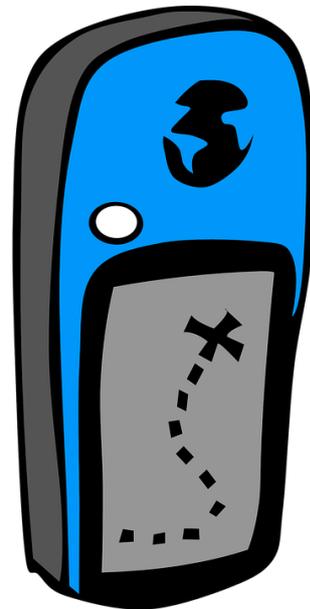
Android GPS Revisited

The GPS receivers in our phones have become so important that most people using an Android device never turn off the so called location services. Under the hood, this service decides when to obtain a GPS fix or when to rely on GSM or WiFi for localization. There are pros and cons to both, GPS being more accurate outdoors, while WiFi and GSM also work indoors but with much worse accuracy than GPS. Also, WiFi and GSM consume less energy than GPS, since a position can be found rather quickly. All this effort shows the importance of location awareness in today's mobile platforms.

Geo-tagging, navigating, finding nearby bars or shops, or even online dating nowadays require accurate location information. It seems rather distressing that the receiver design and localization algorithms have not adapted to the new landscape of devices we are using today as compared to the 90's.

We have been working on a drastically different GPS localization algorithm. The algorithm delivers superior energy efficiency and also works well in situations with bad signal reception. Our algorithm can run on the device or the computation can be offloaded to the cloud.

The goal of this thesis is to adapt an Android device to incorporate a GPS receiver that can be used with our algorithm. You would not implement the algorithm itself as there is already a cloud implementation and porting it to Android is not necessary. All the parts that are required for our receiver, like antennas and front-ends, are readily available. Your task would be to incorporate the receiver into an Android device. For example, there are reference designs for common SoCs that are used in most of today's Android devices.



Requirements: Creativity and hardware prototyping skills are advantageous. The student(s) should be able to work independently on this topic!

Interested? Please contact us for more details!

Contacts

- Pascal Bissig: pascal.bissig@tik.ee.ethz.ch, ETZ G95
- Manuel Eichelberger: manuel.eichelberger@tik.ee.ethz.ch, ETZ G97